AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A system for controlling a power saving mode of a subscriber station in a wireless portable Internet system, the system comprising:

a message receiver for receiving a sleep request ~~(SLP-REQ)~~ message from the subscriber station;

a message parser for parsing the sleep request message and extracting an initial sleep window that is an initial sleep window value when the subscriber station enters a sleep mode, a final sleep window that is a maximum sleep window when the subscriber station enters the sleep mode, and a subscriber station identifier;

a sleep mode controller for determining an entrance time to the sleep mode by the subscriber station which requests the sleep mode according to the initial sleep window, the final sleep window, and the subscriber station identifier ~~so as to~~ for group listening intervals of a plurality of subscriber stations ~~and arrange the same~~;

a grouping database for storing information on ~~the~~ sleep modes of the grouped subscriber stations and information on the ~~groups~~grouped subscriber stations;

a sleep mode database for storing ~~the~~ initial sleep windows and ~~the~~ final sleep windows of the grouped subscriber stations; and

a message transmitter for notifying the sleep-mode-requested subscriber station of the initial sleep windows, the final sleep windows, and the entrance time to the sleep mode.

2. (Original) The system of claim 1, wherein the sleep mode controller comprises:

a grouping controller for controlling grouping of sleep groups managed by the grouping controller according to the sleep request message parsed by the message parser, and checking which group has the least number of subscriber stations in the sleep mode from among the sleep groups;

a subscriber station arranger for arranging the subscriber station to the group with the least number of subscriber stations; and

a sleep window determiner for determining an initial sleep window and a final sleep window appropriate for system management, and using the initial sleep window and a final sleep window to manage the corresponding subscriber station.

3. (Currently Amended) The system of claim 1, further comprising a frame arranger for controlling a start frame so that the grouped and arranged subscriber stations ~~station~~ may receive a traffic indication and be arranged to a frame.

4. (Original) The system of claim 1, wherein the sleep mode controller parses the sleep request message, arranges the subscriber station entering the sleep mode to the group with the least number of subscriber stations, and groups the same.

5. (Original) The system of claim 1, wherein the sleep mode controller determines the initial and final sleep windows, uses the same to manage the subscriber station, and uses the same as parameters of a sleep response message to transmit the parameters to the subscriber station.

6. (Original) The system of claim 1, wherein the sleep mode controller determines the initial and final sleep windows of the subscriber station so that listening intervals for each group may not be superimposed.

7. (Original) The system of claim 1, wherein the sleep mode controller applies notification on the traffic existence in the subscriber stations in the sleep mode to the respective groups so as to minimize the amount of information on signaling messages when indicating the traffic to the subscriber station in the sleep mode.

8. (Original) The system of claim 1, wherein the initial sleep window value is a value when the subscriber station enters the sleep mode, and is integer-times the minimum initial sleep window value controlled by the base station.

9. (Currently Amended) The system of claim 1, wherein the final sleep window value is ~~a~~ the maximum window in which the subscriber station enters the sleep state once while in the operation of sleep mode, and is integer-times the minimum initial sleep window value.

10. (Original) The system of claim 1, wherein the number of sleep groups controlled by the sleep mode controller is not greater than the minimum initial sleep window value based on the number of frames, and the base station assigns the subscriber station to one of sleep groups controlled by the base station.

11. (Original) The system of claim 10, wherein the sleep mode controller controls a start frame so that the sleep group to which the subscriber station is assigned may be arranged to the frame for receiving a traffic indication.

12. (Original) The system of claim 11, wherein when N sleep groups are controlled by the sleep mode controller, a frame having a remainder of k (Frame_Number MOD N = k) generated by dividing the number of frames by N is controlled to be the start frame so as to assign a specific subscriber station to the k-th group.

13. (Currently Amended) A method for controlling a power saving mode in a wireless portable Internet system, the method comprising:

(a) controlling a subscriber station in ~~the~~ an awake mode to detect that ~~the~~ a service provided to the subscriber station has no uplink data or downlink data for more than a predetermined time;

(b) controlling the subscriber station to use a characteristic of the service and transmit a sleep request message to which parameters are established to ~~the~~ a base station;

(c) receiving a sleep response message including an initial sleep window that is an initial sleep window value when the subscriber station enters a sleep mode, a final sleep window that is

a maximum sleep window when the subscriber station enters the sleep mode, and a start frame from the base station;

(d) establishing parameters for ~~the operation of~~ sleep mode operation according to parameters provided in the sleep response message; and

(e) allowing the subscriber station to enter the sleep mode.

14. (Original) The method of claim 13, wherein the initial sleep window value is a value when the subscriber station enters the sleep mode, and is integer-times the minimum initial sleep window value controlled by the base station.

15. (Currently Amended) The method of claim 13, wherein the final sleep window value is ~~a~~ the maximum window in which the subscriber station enters the sleep state once while in the operation of sleep mode, and is integer-times the minimum initial sleep window value.

16. (Original) The method of claim 13, wherein the number of sleep groups is not greater than the minimum initial sleep window value based on the number of frames, and the base station assigns the subscriber station to one of sleep groups controlled by the base station.

17. (Original) The method of claim 16, wherein a start frame is controlled so that the sleep group to which the subscriber station is assigned may be arranged to the frame for receiving a traffic indication.

18. (Currently Amended) A method for controlling a power saving mode in a wireless portable Internet system, the method comprising:

(a) receiving a sleep request message from a subscriber station;

(b) determining an initial sleep window that is an initial sleep window value when the subscriber station enters a sleep mode and a final sleep window that is a maximum sleep window when the subscriber station enters the sleep mode of the subscriber station;

(c) using the initial sleep window and the final sleep window and determining an entrance time to the sleep mode so as to arrange a listening interval of the sleep-mode-requested subscriber station and listening intervals of other subscriber stations and group the subscriber stations; and

(d) transmitting a sleep response message including the initial sleep window, the final sleep window, and a start frame to the subscriber station.

19. (Currently Amended) A method for processing traffic indication in a power saving mode of a subscriber station in a wireless portable Internet system, the method comprising:

(a) ~~accessing~~ reaching a frame for processing traffic indication of a predetermined sleep group, and checking which subscriber station's sleep window is expired from among the subscriber stations configuring the predetermined sleep group;

(b) checking whether corresponding subscriber stations have data to be transmitted;

(c) controlling a base station to establish an indicator for traffic indication to the corresponding subscriber station when the data are found in the subscriber station;

(d) transmitting a traffic indication message when the subscriber stations belonging to the group are checked and the indicator is established; and

(e) detecting the subscriber stations to be in the awake mode, the subscriber stations having established the indicator indicating that the subscriber stations have the data.

20. (Original) The method of claim 19, further comprising:

updating the sleep window corresponding to the subscriber station, and entering a state in which the subscriber station is in the sleep mode when no data are found in the subscriber station.

21. (Original) The method of claim 19, wherein the indicator includes a bitmap method and an identifier list of subscriber stations.